



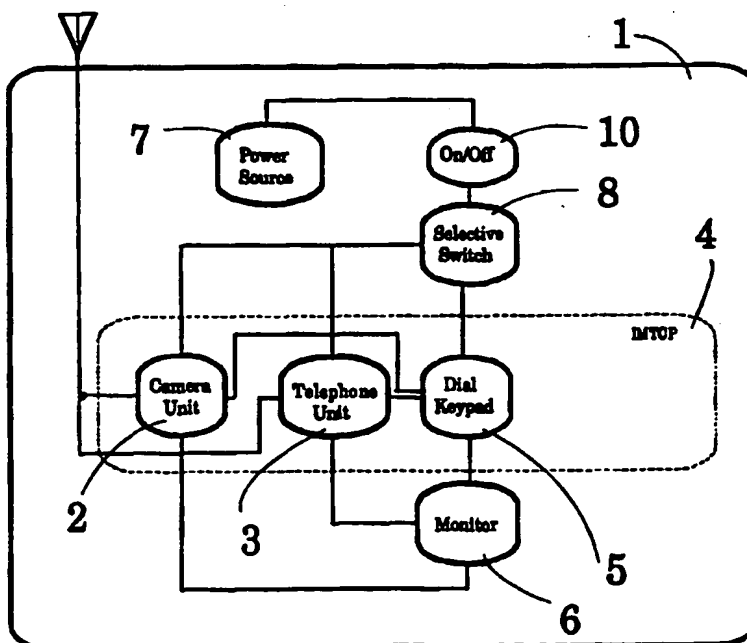
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(54) Title: MULTI-FUNCTIONAL PORTABLE ELECTRONIC DEVICE

(57) Abstract

This invention provides a multi-functional portable electronic device (1) comprised of a photograph camera (2) and a portable telephone (3) which together form a unique hand-held portable device providing all functions of a portable telephone and a photograph camera. In the present invention these units are alternatively either connected to each other and built in one body using common components, like battery and other required functions, or they are fully integrated into each other. In this invention the photograph camera part (2) is a photograph camera which uses films for photographing. Both, the portable telephone part (3) and the photograph camera (2) use one common battery. The dial keypad (5) of the inventive multi-functional device (1) can be used for telephone (3) and also for adjusting the camera (2) parameters, if required.



Multi-functional portable electronic device

This invention provides a multi-functional portable device which is comprised of a photograph camera and a portable telephone which are integrated into each other
5 forming a unique hand-held mobile device providing all functions of a camera and a portable telephone.

At the moment there are a lot of electronic devices, each separately, meeting some types of the user's needs, and each having separate functions providing the user
10 with certain solutions. Many of these devices are used almost in every day of life ranging from calculators to laptop computers, mobile telephones, photograph cameras, video cameras etc. Most of these devices are more or less related to the mobility of the users. Every year a lot of tourists, businessmen etc. travel around the world who use certain type of devices, quite frequently. In an rough comparison it can be seen that
15 almost 90 % of tourists have at least some kind of camera with them, and most of them may also carry a small pocket calculator too. On the other hand the ever increasing mobile communication industries provide the users with mobile telephones which in turn add one more device, though necessary, to the hand-held device set of each user. Therefore, most of users (travellers) need at least three necessary devices to
20 manage with their daily needs when they travel: a mobile telephone, a photograph camera and a pocket calculator. Despite a marginal number of people or professional photographers who are interested in cameras with high capabilities and large lenses, most of people prefer a small and light camera. Therefore, integrating and building a photograph camera and a mobile telephone into one unit will result in a multi-
25 functional device which can, in this regard, provide the users with solutions to their needs when they are in move and travelling.

Unfortunately, most of multi-purpose devices, which have been already invented, have added more complexity to the use of such devices, which can be seen
30 as the reasons why such devices could not come to the market before. For example, in U.S. patent 4,481,382 "Programmable Telephone System, is also proposed a model of such device including calculator which have different dial keypad for calculator functions. Also, another example is a patent application WO 93/12604 "Multi-purpose Modular Cordless Telephone" which also include a calculator installed on the back of
35 the device and have a different dial keypad used for most of calculating functions. On the other hand there is no patent or patent application which integrate a photograph camera (which uses films) into a portable telephone. For example, patent application WO 94/18602 "Combined data recording Device and Pager for a Photographic Camera Back" incorporates a message receiver or pager for receiving messages for the

camera's user. Furthermore in another patent application JP 6-133081 " Electronic Still Camera with Portable Telephone function" includes an electronic still camera which also includes a portable telephone function, and the said camera is not a photograph camera which uses films but it transfers an image, which is first displayed, in data form to an internal memory. As it is quite clear, the above-mentioned JP 6-133081 dose not include a photograph camera but it includes an electronic device which records an image and can transfer it via telephone line if desired. Therefore the word "camera" used in said JP 6-133081 should not be understood as photograph camera, which uses films for photographing as is the object of the inventive multi-functional device. As it is clear, the JP6-133081 and other similar devices use the technique of television cameras which can also directly transfer an image or dynamic images to the television station. The word camera can be used in conjunction with many other words: for example video camera, infra-red camera, electronic camera, etc. but each of these uses different techniques and they are different devices for different purposes. But until the present invention there has been done no invention which provides a device in which a photograph camera, using film, is integrated into a portable telephone. The photograph camera integrated in the present inventive multi-functional device uses films for photography. It dose not processes the image or picture into data form in order to record it or transfer it electronically. Films used in this invention are (negative) films used in all photograph cameras.

Therefore, integrating a photograph camera (which uses films for photography) and a portable telephone into each other is of great essentially in achieving more comfortability in every day of our life, more cost effective products, saving environment by using common materials (for example only one dial keypad, a unique body) and avoiding use of un-chargeable batteries. Since most of mobile telephones use chargeable batteries therefore by integrating photograph cameras into mobile terminals only one battery can be used for both devices. On the other hand there are a lot of retired and old people who, at this age of their life, travel a lot and use mobile telephones and cameras but they would prefer to have only one device including both devices in order to be light when they are in move. There are a lot of other people who use cameras almost every day because of their professions, habits etc. and they also use or become users of mobile telephones. Therefore, integrating these devices and creating one multi-functional device as is the object of this invention is desired by many people.

The present invention now will be described more fully hereinafter with reference to the accompanying drawings in which a preferred embodiment of the invention is shown.

- 5 FIG. 1 presents a general form of the integrated multi-functional portable device in which a telephone unit, and a photograph camera are integrated into each other. This figure also depicts the relationships between each part of this device.

FIG. 2 presents the inventive multi-functional portable device in a hand-held form.

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FIG. 3a and 3b present a hand-set (hand-held) model of the inventive multi-functional portable device in which photograph camera and portable telephone are fully integrated into each other.

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The present invention is a multi-functional portable device 1 comprised of a photograph camera 2 and a portable telephone 3 which are alternatively connected to each other or integrated into each other in order to form a single hand-held device providing all functions which each of the above-mentioned units provide separately. In an integrated alternative the telephone 3 and camera 2 can be integrated into each other which form an Integrated Mobile Telephone-Camera Part (IMTCP) 4 using the telephone keypad 5 for most of their functions and using a common monitor 6 in order to screen the required data. IMTCP includes an adaptation part for the interfaces between telephone 3, camera 2 and dial keypad 5 in order to use the same electronic components and keypad functions as much as possible. The said adaptation part include the required soft-wares for all functions and connections required between the telephone 3 and photograph camera 2. In the former alternative each of these units, the telephone 3, the camera 2 are connected to each other as separate units, forming the inventive multi-functional portable device 1, but using a common power source 7 and alternatively a common dial keypad 5. In the present inventive device 1 the dial keypad 5 can be connected either to the telephone 3 for telephone calls, or to the camera 2 for camera adjustments, if required. A selective switch 8 can activate the telephone 3 or the photograph camera 2. However, one of the keypad buttons can alternatively be used to switch between camera 2 and telephone 3 or to activate them simultaneously. The monitor 6 is connected to the both units in order to screen for example the dialled number or to screen the incoming or outgoing messages or other information which normally a portable telephone uses. The monitor 6 can show to the user the selected mode: Mode-1: telephone, Mode-2: camera, as it is shown in FIG 2. When the camera is activated, the camera's modes can be monitored, for example

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focal length, number of taken photographs etc. Also, a separate bottom 9 can be used to make the photograph camera 2 operative. The power source 7 of the inventive device is connected to an On/Off switch 10 through which the power can be switched to the telephone 3 and photograph camera 2. However, each unit may be directly
5 connected to the power source 7 and may be activated by separate switches, though, using a common dial keypad, monitor and power source.

In the photograph camera industry different type of cameras are designed and produced, having different techniques and functions. For example a camera may
10 include only mechanical means whereas another one can be partly electronic, but all of them use films (negatives) for photographing. In a partly electronic photograph camera you may see what mode you have set; how many photograph you have taken on film and whether the battery is still charged, or you can have automatic film transport. Some cameras automatically adapt to whatever you have in view: focusing,
15 exposure control and flash activation whenever necessary. Therefore, the object of this invention is not limited to for example defining the functions of the photograph camera 2 used in this invention, but any kind of photograph camera either mechanical or partly electronic which uses films for photographing can be integrated into the inventive device. Therefore, the kind of photograph camera (which however uses
20 films for photographing) or the type of the telephone unit and their functions or capability are not limited in this invention. The inventive device can provide all functions already available in any photograph camera and portable telephone depending on user's wishes and the market: what kind of camera techniques (mechanical, or partly electronic) is required, and what kind of telephone techniques
25 (digital, analogue) is required. In the present invention a portable telephone and a photograph camera are integrated into each other resulting in a novel and inventive device having all functions of a telephone and a camera, using the same and common components as much as possible, and using a common power supply (battery), subsequently providing users with a small hand-held mobile device, as it is the object
30 of this invention, which can be used as a portable telephone when desired and as a photograph camera (using films) whenever needed. For example, the timer of the telephone 3 can be used for camera 2 too for remote photographing. In FIG 3a and 3b it is shown that in addition to dial keypad 5 which can be a common keypad for both units (telephone 4, camera 2), also separate buttons 11 can be used for camera
35 adjustments. The microphone 12 is integrated at the camera side while camera's shutter button 13 is located at the other end near to the speaker 14 or on the other side of the inventive device 1. Furthermore, adjusting buttons 11 (for example flash mode button, focusing mode button etc.) which are located over the lens 15 can be located at

any other part of the inventive device 1. The camera may also include a remote control receiver in order to enable the user to take pictures remotely. In this invention the receiver of the telephone unit 3 can be used also as the receiver of the camera's remote control. Therefore, the telephone receiver can receive the signals of the remote control 16 through the telephone antenna 17 when the camera is activated (is turned on), or it can also turn on the camera remotely. However, this does not mean that a separate remote control receiver, for example, an infrared receiver 18 can not be used. The lens of the camera of the inventive device can be fixed 19 or can be focusable 15 dynamically with a variable focal length. The camera's lenses 15 and 19 can be built in the middle or any other part of the inventive device, depending on the desired size of the inventive device and on the films used. The film chamber 20 of the camera 2 can include different sizes of film rolls or film cartridges depending on the manufactured model of the inventive device. Both the photograph camera 2 and film chamber 20 can be alternatively removed from the rest part of the inventive multi-functional device 1 if required. In FIG. 2, the lens 19 and the view finder 21 (of the camera 2) can be located at any part of the inventive device, for example center, corner, within the monitor etc. depending on the manufacturing design. The camera's flash 22 can be either an built-in electronic flash or a removable flash, which can be located at any part of the inventive device 1.

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In the implementation of the inventive multi-functional portable device several alternatives can be used for connecting and integrating the telephone 3 and the photograph camera 2 which all naturally fall within the object of this invention. Therefore, the above description and illustrations should not be construed as limiting the scope of the invention.

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Claims

1. A multi-functional portable device 1, characterised in that it is comprised of a photograph camera 2 which uses (negatives) films for photographing and a portable telephone 3 which are connected or fully integrated into each other forming a unique hand-held portable device providing all functions of said camera and portable telephone, and using a common power source 7 and dial keypad 5, and that;
- 5
- 10 - its keypad 5 can be used for all functions of the portable telephone 3 and the camera 2;
- it has a selective switch 8 which can be used to select and activate the camera 2 or portable telephone 3 separately or alternatively both of them simultaneously;
- 15 - its camera 2 includes all means, either mechanical or electronical, and functions for photographing by using photograph films (negatives);
- its camera 2 can be any kind of photograph camera capable of using films (negatives) for photographing;
- 20 - its camera 2 can be connected to the portable telephone 3 and can be removed whenever required;
- 25 - its camera 2 can be either build and integrated into the said multi-functional portable device 1 or it can be connected or removed whenever required;
- its camera 2 can use any kind of films and it can be operative by using a separate bottom 9;
- 30 - its portable telephone 3 can be any kind of mobile telephone, digital or analogue, operative in any kind of mobile communication system;
- its portable telephone 3 can be comprised of any kind of mobile terminal including means for sending and receiving voice and data to and from any kind of mobile communication system;
- 35 - it has a common power source 7 which can be used for all functions of the multi-functional device 1;
- 40 - its telephone unit 3 and the camera unit 2 can be connected to each other as separate units, forming the inventive multi-functional portable device 1, and using a common power source 7 and dial keypad 5;
- 45 - the lens 19 and view finder 21 of its camera unit 2 can be located in any part, corner, center, or within the monitor, of said inventive device 1 and that the lens of its camera can be fixed 19 or dynamic and focusable 15.

- the receiver of its telephone can receive signals of said camera's remote control 16 through antenna 17;

5 - its camera's remote control 16 can activate the camera 2 through a different receiver 18;

- its camera 2 can be connected to separate function buttons 11 that can be used for camera modes and adjustment;

10 - its camera's shutter button 13 can be located at any part of the inventive device 1;

- its camera's view finder 21 can be located at any part of the inventive device;

15 - its camera's flash can be either an built-in electronic flash or a removable flash which can be located at any part of the inventive device 1.

20 2. A multi-functional portable device 1 as claimed in claim 1, characterised in that it is comprised of a portable telephone unit 3 and a photograph camera 2 which are integrated into each other and are connected to the same dial keypad 5.

25 3. A multi-functional portable device 1 as claimed in claims 1 and 2, characterised in that it includes an adaptation part for the interfaces between telephone 3, camera 2 and dial keypad 5 in order to make possible the use of the same and common soft-wares and keypad functions as much as possible.

30 4. A multi-functional portable device 1 as claimed in any preceding claims characterised in that it includes all means required for functioning of its photograph camera 2 and portable telephone 3.

5. A multi-functional portable device 1 as claimed in claim 1 characterised in that it is comprised of a photograph camera 2, which uses films for photography, and a portable telephone 3 which are integrated into each other providing all functions of a photograph camera and a portable telephone.

AMENDED CLAIMS

[received by the International Bureau on 06 May 1996 (06.05.96);
original claims 1-5 replaced by new claims 1-10 (4 pages)]

1. A multi-functional portable device (1), **characterized** in that it is comprised of a compact photographic camera (2) which uses films for photographing and a portable telephone (3) which are connected or fully integrated into each other forming a unique hand-held portable device providing all functions of said camera and portable telephone, so that said device (1) can be used both as a hand-held photographic camera and a portable telephone which are build in one body and use a common chargeable battery (7) dial keypad (5), display (6), and that includes an adaptation part for the interfaces between telephone unit (3), camera unit (2) and the dial keypad (5) in order to make possible the use of the same and common components, soft-wares, and keypad functions as much as possible.

2. A multi-functional portable device (1) as claimed in claim 1, **characterized** in that the camera unit (2) includes all functions and means, either mechanical or electronic, for photographing by using photographic films; and that,

- the signals of the camera's remote control (16) can be received either through the antenna and receiver (17) of said telephone unit (3) or through a separate receiver (18), which alternatively can be an infrared receiver; and that,

- said camera unit (2) can use any kind of films and it can be switched on and operated by a separate switch (9) or by a remote control (16) or by a selective switch (8) which can be alternatively located under or integrated into said dial keypad or display etc.; and that,

- said camera's shutter switch (13) can be located at any part of the inventive device, and that it can be alternatively integrated into the dial keypad (1) so that one of the dial keypad's buttons operates both as said shutter switch and as a keypad button for said telephone unit; and that,

- said camera unit (2) includes all required means of the film (negatives) using photographic cameras for taking pictures (still images); and that,

- said camera unit (2) can be either build and integrated into said multi-functional portable device, 1 or it can be connected or removed whenever required; and that,

- said camera unit (2) can be connected to separate function buttons (11) that can be used for camera modes and adjustment; and that,

- said camera's view finder (21) can be located at any part of the inventive device; and that,

- said camera's flash can be either an built-in electronic flash or a removable flash which can be located at any part of the inventive device (1); and that,

- said camera's lens (15 or 19) can be located at any part of the inventive device; and that,

3. A multi-functional portable device (1) as claimed in claims 1, characterized in that it includes an adaptation part for the interfaces between telephone (3), camera (2) and dial keypad (5) in order to make possible the use of the same and common components, soft-wares, and keypad functions as much as possible.

4. A multi-functional portable device (1) as claimed in any preceding claims, characterized in that its telephone unit (3) can be any kind of mobile/cellular/cordless telephone either digital or analogue, operative in any kind of mobile communication system; and that,

- said telephone unit (3) includes all means for transmission and reception of voice and data or other telecommunications services through any kind of wireless communication system.

5. A multi-functional portable device (1) as claimed in any preceding claims, characterized in that the lens (19, 15) of its camera unit (2) can be located in any part, corner, center, within the monitor, or under the keypad of said inventive device (1) and that the lens of its camera can be either fixed (19) or dynamic with variable focus lengths (15); and that,

- said lens (15, 19) can be located under the display (6) so that when the display is moved up or down, the lens would be appeared and the camera is ready (switched on) to operate; and that,

- said lens (15, 19) can be located under the keypad (5) so that when keypad is drawn down to the lower end of the device (1), the lens (15) would be appeared and the camera is ready (switched on) to operate, and that,

- said lens (15, 19) can be located under the keypad (5) so that when said keypad is opened (like a door), the lens would be appeared and the camera is ready (switched on) to operate.

6. A multi-functional portable device (1), as claimed in any preceding claims, **characterized** in that it has a selective switch 8 which can be used to select and activate the camera (2) or portable telephone (3) separately or alternatively simultaneously; and that,

- both the camera unit (2) and the telephone unit (3) can be operated at the same time or they can be operated separately so that the camera unit (2) can be turned on and operative even when the portable telephone is in turn-off mode; and that,

- said selective switch (8) can be located at any part of said portable device (1); and that,

- said selective switch can be located under the keypad (5) or display (6) so that whenever said keypad or display is moved or slide down or up or is opened like a door, said selective switch turns on the camera unit (2).

7. A multi-functional portable device (1), as claimed in any preceding claims, **characterized** in that its film chamber (20) can include any kind of films of any size in accordance with the device's (1) design; and that,

- said film chamber can be built into or removable from said portable device (1); and that,

- said film chamber can be built in or located at any end or side of said portable device (1), for example, at the lower end under the microphone (12) or at the upper end under the speaker (14) or display (6); and that,

- said film chamber can be built-in and located after the battery chamber, and said battery chamber be located at the lower end of said portable device (1); and that,

- when there is no film in said film chamber, the battery (7) and its chamber can take the film chamber's place by moving the battery chamber to the film chamber or vice versa.

8. A dial keypad (5) as claimed in any preceding claims, **characterized** in that as it is connected to the body of portable device (1) it can be slide or moved to up or down and/or left and right directions, or it can be opened and closed like a door from any side in order to cover or open the lens (15, 19); and that,

- said dial keypad can cover or open the lens (15, 19) of the camera unit (2) so that when said dial keypad is drawn down or opened, said lens (15) can be appeared and said camera (2) is ready for photographing; and that,

- said dial keypad can function even it is opened (like a door) or drawn to the lower down of portable device (1) so that all function buttons, located on the dial keypad's body, can function without any interruption; and that,

9. A multi-functional portable device (1) as claimed in claim (1) **characterized** in that it is comprised of a photographic camera (2), which uses films for photography, and a portable telephone unit (3) which are fully integrated into each other and are connected to the same dial keypad (5), battery (7) and display (6) providing all functions of a photographic camera and a portable telephone.

10. A multi-functional portable device (1) as claimed in claims 1, **characterized** in that the camera unit (2) and the telephone unit (3) configure an Integrated Mobile Telephone and Camera Part (IMTCP) that consists of all electronic components and functions required by the telephone unit (3) and the camera unit (2) in order to minimize the use of components and software for both units (2, 3) and to provide common dial keypad functions etc. for both units (2, 3), and that,

- said IMTCP connects the telephone unit (3), the camera unit (2) and the dial keypad to each other so that all operations and information about the camera unit (such as film number, different modes etc.) and all other required data of both units (2 and 3) can be displayed on a common display (6); and that,

- said IMTCP includes the required software needed to control and function the camera unit (2) and the telephone unit (3); and that,

- said IMTCP is an integrated component that provides all functions required for operation of camera unit (2) and telephone unit (3).

FIG. 1

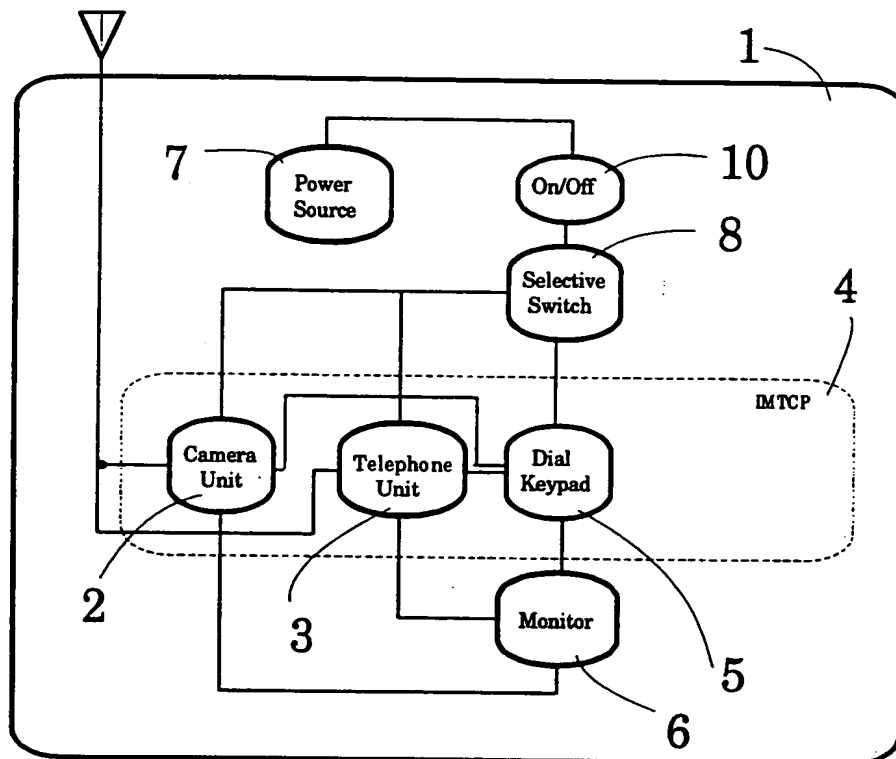


FIG. 2

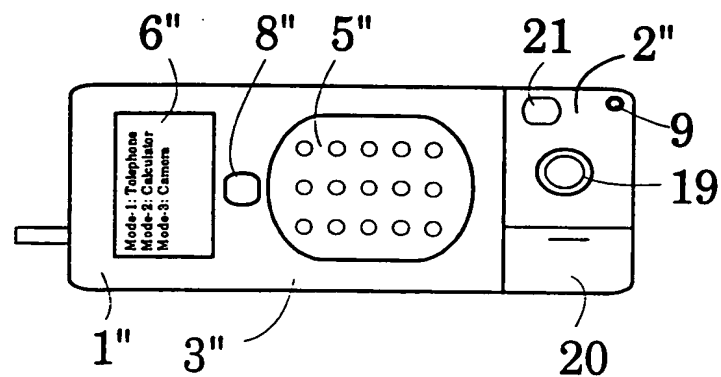


FIG. 3a

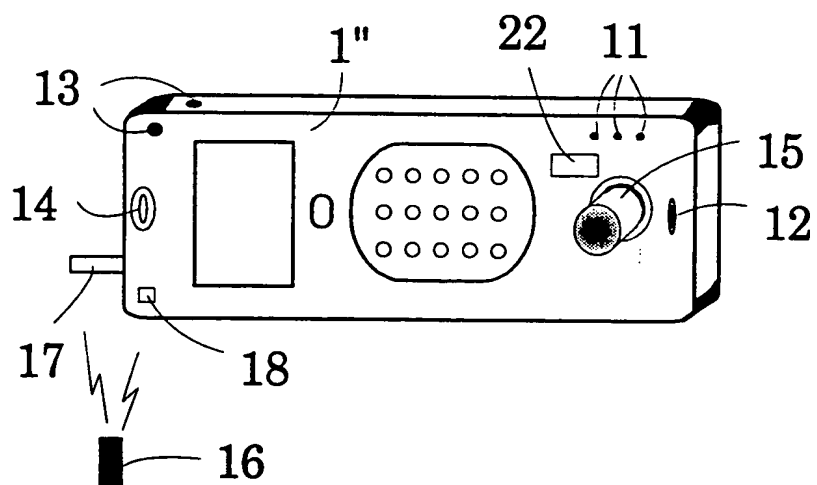
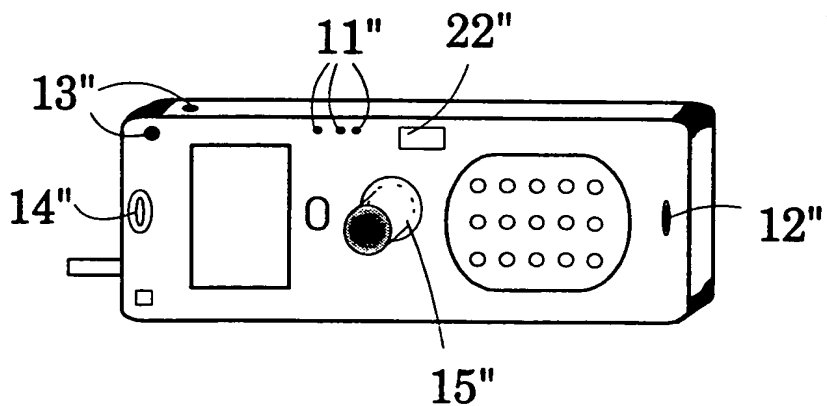


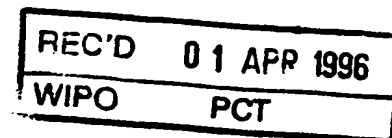
FIG. 3b



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Subject: PCT/FI95/00374. Publication of rectification request (i.e. drawings) under the rule 91.1(f) together with the application.

Final Request for Publication of the Rectification

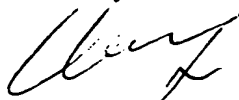
We were already informed by the Receiving Office (see attached copy) that our applications contain obvious errors and that we should send our rectification request to the International Searching Authority.

We have sent a rectification request containing the corrected drawings for the above application, to the International Searching Authority (PRV) in Sweden, but since the authorization of the rectification was not considered (even though the drawings have obvious errors e.g. numbers with dots), we hereby would like you to publish the rectification request (i.e. the drawing included in the rectification request) together with above-mentioned application, when it is published.

The rectification includes pages 1/2 and 2/2 containing figures: Fig 1, Fig 2, Fig 3a and Fig 3b of the application. The attached drawings fall exactly into the description of the invention. The required fee (i.e. Special fee for publication of the request for rectification under PCT Rule 91.1f) for this purpose has also been transferred to WIPO's account (see attached copy).

Hereby, we also request that only FIG 1 and FIG 3b (preferably those included in the request for publication of the rectification, attached) should accompany the abstract when it is published.

Sincerely



Behruz Vazvan
Applicant

1/2

FIG. 1

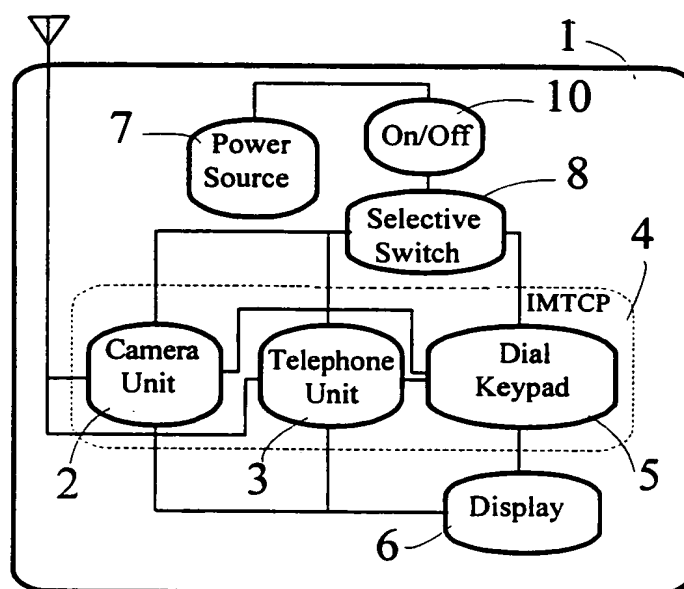


FIG. 2

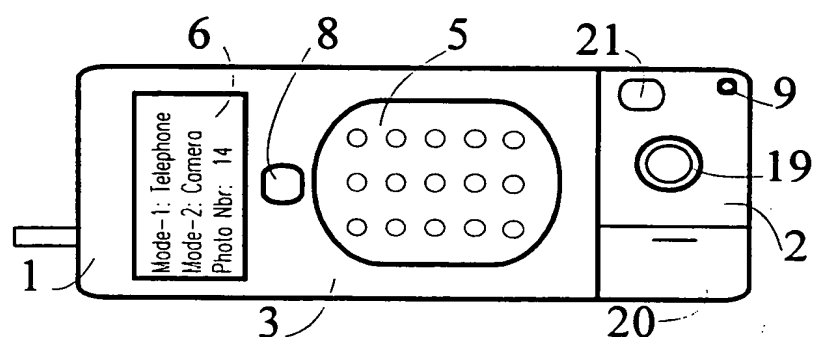
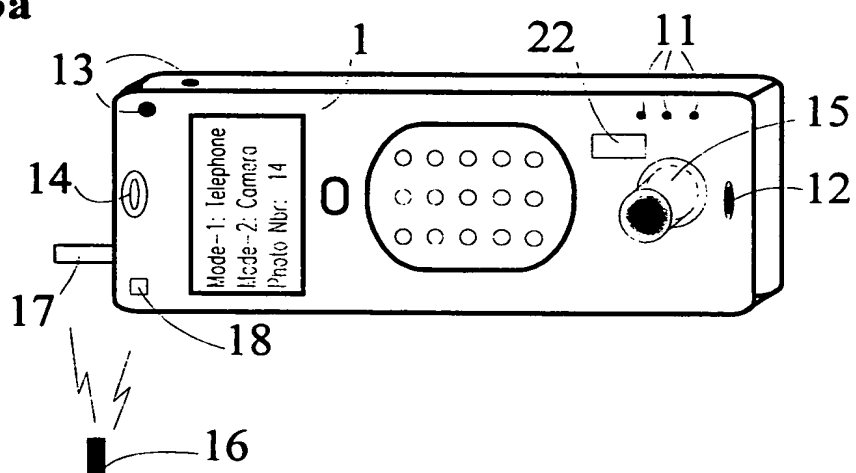
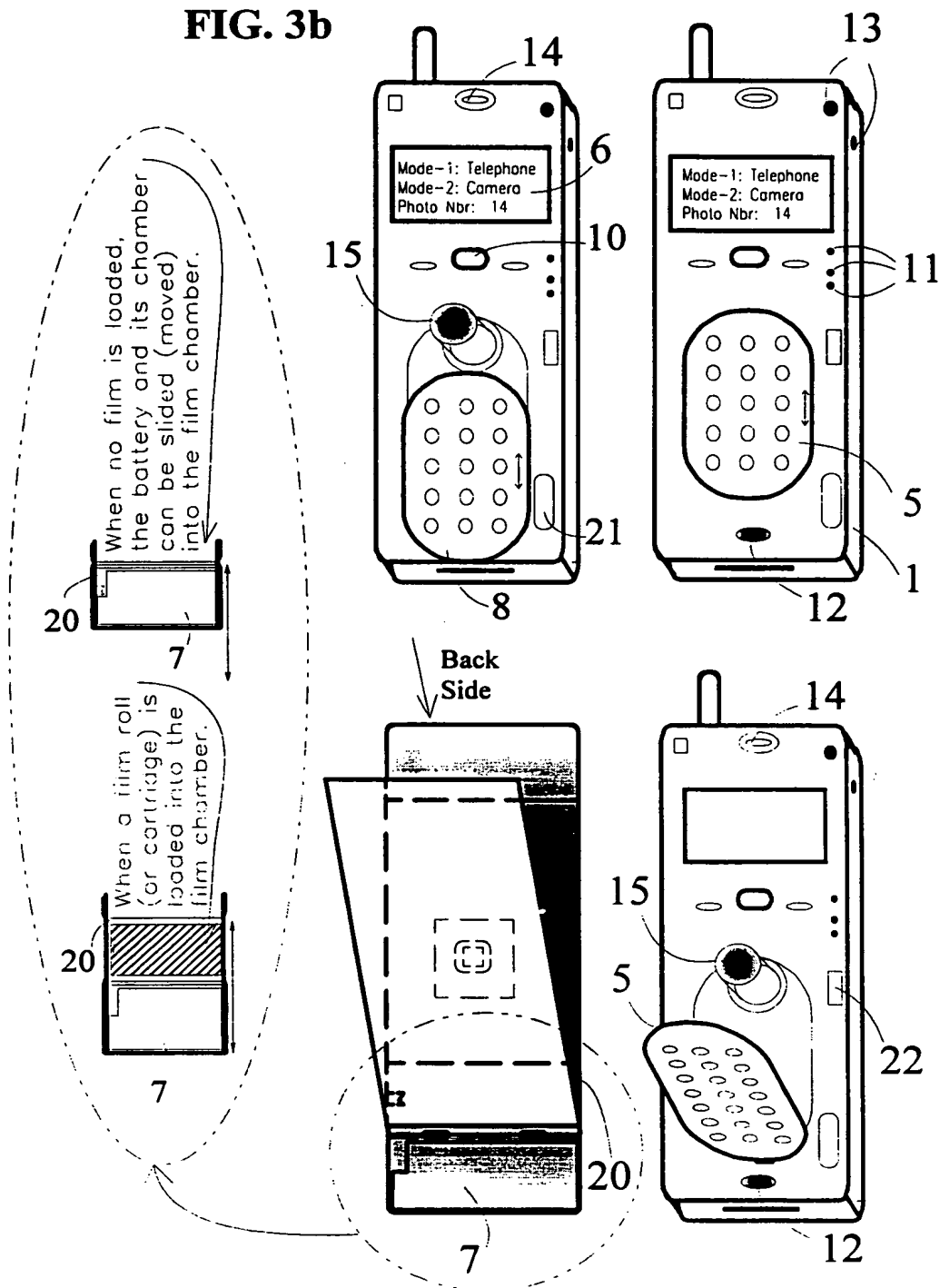


FIG. 3a



2/2

FIG. 3b



INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 95/00374

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: G03B 29/00, H04M 11/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: G03B, H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DIALOG 125, 340, 350, 351

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9312604 A1 (BAUR, ALBERT), 24 June 1993 (24.06.93), page 7, line 29 - line 33; page 8, line 11 - line 26, figures 1-4, claim 13, abstract --	1-5
X	Patent Abstracts of Japan, Vol 18, No 425, E-1591, abstract of JP, A, 6-133081 (KYOCERA CORP), 13 May 1994 (13.05.94) -- -----	1-5



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

17 April 1996

Date of mailing of the international search report

18 -04- 1996

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